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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/067,333	02/07/2002	Yoshiyuki Hirayama	HITA.0161	4593

7590

12/04/2003

Stanley P. Fisher
Reed Smith Hazel & Thomas LLP
3110 Fairview Park Drive, Suite 1400
Falls Church, VA 22042-4503

EXAMINER

RICKMAN, HOLLY C

ART UNIT	PAPER NUMBER
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1773

DATE MAILED: 12/04/2003

7

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,333

Applicant(s)

HIRAYAMA ET AL.

Examiner

Holly Rickman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 5-6, and 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Fullerton et al. (US 6383668).

Fullerton et al. disclose a magnetic recording medium having an underlayer of CrTi formed on a NiP-plated substrate, a first ferromagnetic layer, a Ru intermediate layer, and a second ferromagnetic layer formed thereon. The magnetic layers are antiferromagnetically coupled across the Ru layer having a thickness of 0.6 nm (col. 3, lines 1-18; col. 5, lines 36-37). The reference teaches that the ferromagnetic layers are formed from CoPtCrB alloys having 4-25 at% Pt (col. 3, lines 34-37). The claims are anticipated in view of the explicit disclosure of 4 at% Pt.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al. (US 6383668) in view of Wang et al. (US 2002/0098389).

Fullerton et al. teach all of the limitations of the claim, as detailed above, except for the use of CrTiB underlayer in place of the CrTi layer taught therein.

Wang et al. teach the equivalence of CrTi and CrTiB for use as underlayers in magnetic recording media underneath Co alloy layers (see claim 5).

It would have been obvious to one of ordinary skill in the art at the time of invention to substitute CrTiB for the CrTi layer taught by Fullerton et al. in view of the functional equivalence of the two materials.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al. (US 6383668) in view of Sakawaki et al. (US 2002/0160234).

Fullerton et al. teach all of the limitations of the claim, as detailed above, except for the use of an amorphous film containing Ta and Ni formed between the substrate and the CrTi layer.

Sakawaki et al. teach the use of NiTa as an orientation determining layer under a Cr-based underlayer wherein the NiTa layer causes the Cr underlayer to have predominant orientation plane of (200) plane thus allowing the overlying magnetic layers to have a (110) orientation (paragraphs [0031]-[0038]).

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It would have been obvious to one of ordinary skill in the art at the time of invention to add a NiTa layer underneath the CrTi layer taught by Fullerton et al. in order to provide the recording medium with the preferred (200) orientation for the underlayer and the preferred (110) orientation for the magnetic layers.

Response to Arguments

6. Applicant's arguments filed 10/01/03 have been fully considered but they are not persuasive.

Applicant argues that Fullerton et al. fail to teach or suggest the claimed invention because the reference teaches a "host" layer made up of two antiferromagnetically coupled magnetic layers with a magnetic recording layer deposited thereon. Applicant argues that the present claims require a "magnetic recording layer" formed of two magnetic layers that are antiferromagnetically coupled across a spacer layer.

It is the Examiner's contention that the present claims read on Fullerton because they do not exclude the presence of unrecited layers. The comprising language used throughout renders the claims open to additional layers including a second magnetic recording layer deposited on the first multilayered magnetic recording layer.

In addition, the term "magnetic recording layer" has been considered insofar as the multiple layers of the "host" layer taught by Fullerton et al. are capable of performing this function. It is the Examiner's contention that Fullerton's "host" layer is capable of functioning as a magnetic recording layer by virtue of the fact that it is substantially the same in structure and composition as the claimed magnetic recording layer.

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

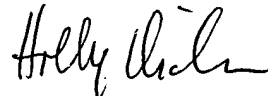
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (703) 305-2642. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul J. Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Holly Rickman
Primary Examiner
Art Unit 1773

hcr
December 1, 2003